

Grasslands and forests of Washington.—A recent study by WEAVER¹² of the vegetation of adjacent portions of Washington and Idaho affords an excellent example of modern ecological investigation. After a sketch of the physiography and geology of the region, the results of quantitative studies of the principal physical factors involved are reported. Temperature, rainfall, evaporation, and soil moisture data are given, the last two receiving most emphasis, as they express the important aspects of the water relationship of a vegetation in which the available moisture is undoubtedly the limiting factor. A preliminary report of the evaporation studies was previously made and reviewed in this journal,¹³ and the present more complete report only tends to confirm the conclusion that the differences of the rates of evaporation in the various plant communities are sufficient to be important factors in causing succession. The studies of soil moisture also show that this important factor varies in amount directly with the order of the occurrence of the various communities in the order of succession. Incidentally it may be noted that the soil of the *Thuja* association has a very high water holding capacity, showing during the months of July and August a supply of "growth water" of over 40 per cent, thus providing for the development of the very complete mesophytism seen in this climax conifer forest.

The western conifer forests here show a succession from shrub of xerophytic character through *Pinus-Pseudotsuga*, *Larix-Abies* associations to the luxuriant conifer forest composed almost exclusively of *Thuja plicata*. The secondary species of this forest are carefully considered, as well as the reforestation of cutover areas and burns.

The scrub formation dominated by *Artemisia tridentata* and the hydrarch succession from ponds and streams are described, but perhaps aside from the forest the most important and interesting community is the grassland termed "prairie-plains formation" and dominated by *Agropyron spicatum* and *Festuca ovina*. It presents seasonal aspects varying from rich grassy verdure during the comparatively moist spring and early summer, to the sere brown of the arid late summer. The soil moisture determinations show the gradual depletion of growth water from the surface stratum, where it exists in June to the depth of 5 ft., by the middle of August. The response to this distribution of moisture is seen in the luxuriant spring growth and early flowering of the comparatively shallow rooted grasses which dominate the community, and the entire absence of late blooming grasses. It is also apparent in the development of extensive root systems in such conspicuous herbaceous plants as *Balsamorhiza sagittata*, *Hieracium Scouleri*, and *Lupinus ornatus*. This extensive root development has been carefully studied by the same investigator,¹⁴

¹² WEAVER, J. E., A study of the root systems of prairie plants of southeastern Washington. *Plant World* 18:227-248; 272-292. *figs. 18*. 1915.

¹³ BOT. GAZ. 59:71-72. 1915.

¹⁴ WEAVER, J. E., A study of the vegetation of southeastern Washington and adjacent Idaho. *Univ. Neb. Studies* 17:1-114. 1917.

who finds the generalized root type most extensively developed and a penetration of 60-70 inches not uncommon.

The reports abound in interesting details too numerous to mention in a review, are carefully organized and well illustrated with graphs, drawings, and photographs, forming a notable contribution to our knowledge of the vegetation of an unusually interesting region.—GEO. D. FULLER.

Taxonomic notes.—BLAKE¹⁵ has described a new variety of *Vernonia altissima* (*taeniotricha*) which occurs from Indiana and Illinois to Missouri and Mississippi.

BRITTON¹⁶ has published a list of the Cuban species of *Rhynchospora*, with an analytical key. It is in Spanish and appears among the publications entitled "Memorias de la Sociedad Poey." The author lists 55 species, 6 of which are described as new.

BURT,¹⁷ in continuation of his studies of North American Thelephoraceae, has monographed the genus *Coniophora*, recognizing 19 species, 5 of which are described as new.

DAVIE,¹⁸ in connection with the publication of a list of plants collected in Brazil in 1914, has described new species in *Gaultheria* and *Pleurostachys*.

FERNALD,¹⁹ in a series of short papers, has described new species and varieties in *Saxifraga* (province of Quebec) and *Vitis* (New England); also new varieties in various species of *Polygonum*, *Ranunculus* (4), *Anemone*, *Saxifraga*, *Cyperus*, *Stenophyllus*, and *Aster*.

FAWCETT and RENDLE²⁰ have described 3 new species of *Byrsonima* and a new *Zanthoxylum* from Jamaica.

HILL²¹ has published a revision of the genus *Strychnos* in India and throughout the East. In that region he recognizes 91 species, 24 of which are described as new.

HEMSLEY²² has described a new arborescent genus of Euphorbiaceae (*Riseleya*) from the Seychelles. It seems to be restricted to Mahé, where it was formerly common in the mountains.

¹⁵ BLAKE, S. F., *Rhodora* 19:167. 1917.

¹⁶ BRITTON, N. L., El genero *Rhynchospora* Vahl, en Cuba. *Contrib. Jard. Bot. N.Y.* no. 194. pp. 16. 1917.

¹⁷ BURT, E. A., The Thelephoraceae of North America. VIII. *Coniophora*. *Ann. Mo. Bot. Gard.* 4:237-269. *figs.* 19. 1917.

¹⁸ DAVIE, R. C., Some Brazilian plants. *Jour. Botany* 55:215-223. 1917.

¹⁹ FERNALD, M. L., *Contrib. Gray Herb.* 19:133-155. 1917.

²⁰ FAWCETT, W., and RENDLE, A. B., Notes on Jamaica plants. *Jour. Botany* 55:268-271. 1917.

²¹ HILL, A. W., The genus *Strychnos* in India and the East. *Kew Bulletin*, 1917: nos. 4 and 5. pp. 121-210.

²² HEMSLEY, W. B., and TURRILL, W. B., Plants of Seychelles and Aldabra. *Jour. Botany* 55:285-288. 1917.